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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of
Robin J. Guthrie
Serial No.: 10/816,403
Filed: April 1, 2004
Title: Fuel Cell Reactant Flow Fields That Maximize Planform Utilization

Docket No.: C-2480
Art Unit: 1795
Examiner: Keith D. Walker

I hereby certify that this correspondence is being facsimile transmitted to the United States Patent and Trademark Office (Fax No. 571-273-8300) on January 31, 2008.
Barbara Cecere

RESPONSE

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This paper is responsive to the Office Action dated December 10, 2007. Claims 1-5 and 7-9 remain for consideration.

The rejection of claim 5 as indefinite, for "about the same", should not have been final, because the amendment to claim 5 was only a -112-2 correction required by the Examiner. Applicant should be allowed to respond.

IDS

A copy of a negative IDS filed with this application on April 1, 2004 is provided herewith. Also provided herewith is a copy of the return postcard indicating that the negative IDS was received in the USPTO back then.

Rejections -112

1. Claim 5 is rejected under -112-1, alleging that a width to length aspect ratio is not enabled. Original claim 5 discloses (and therefore is part of the disclosure in this application) that "the number of transverse channel portions in said transverse flow field area is on the order of an aspect ratio of the length or width of said transverse flow field area to the width or length of said transverse flow field area." This has been amended to clarify it

by changing "on the order of" to "about the same as", and to add "respectively" to clarify "length...to the width" and "width...to the...length".

The original application states on lines 13-15 of page 3 that the aspect ratio is "the ratio of the length to the width or the ratio of the width to the length, whichever is greater." That is a complete teaching. The allegation that someone skilled in the fuel cell and related arts could not figure out how to use the invention if indeed the width was greater than the length is taking Official Notice. Applicant asserts that this matter is as simple as other simple geometric relationships, with which all people have had experience in their early elementary education, and certainly all persons skilled in fuel cell and related arts have had experience with such simple geometric concepts in their high school and/or college study of geometry. Applicant challenges this assertion as being not properly based on common knowledge and demands that if the Examiner maintains that these relationships are not that simple, the Examiner support the finding with adequate documentary evidence as is required in 37 CFR 104 (d) (2); In Re Zurco, 258 F.2d 1379, 1386, 59 USPQ 2nd 1693, 1697 (Fed. Cir. 2001); MPEP 2144.03 C.

One skilled in the fuel cell and related arts is enabled by the statement "the ratio of the length to the width or the ratio of the width to the length, whichever is greater". Examples need not be cited if not needed; the invention is enabled if one skilled in the fuel cell and related arts could practice the invention without undue experimentation. The experimentation in the case of width greater than length compared to length greater than width is certainly routine; in fact it is trivial. Therefore, reconsideration and withdrawal of the rejection of claim 5 under 112-1 with respect to the aspect ratio is respectfully requested.

2. Claim 5 is rejected under -112-2 as indefinite, alleging no boundaries are set for "about the same as". However, that is not true. At page 8, lines 16-22, the example is given with respect to Fig. 8 where the ratio of grooves per channel is 1.25 and the aspect ratio of length to width is about 1.24, being identified as "about the same" on line 21.

The nature of the invention is such that if one took advantage of the invention (the notion that there should be a relationship between the number of grooves in transverse channels and the shape of the transverse section), the degree to which the advantage of the

invention is taken would be up to whoever was practicing the invention. Therefore, a detailed value for "about the same" is not necessary in order to make the claim definite.

With respect to Fig. 6, discussed on page 5, if one were to find one's own determination of the aspect ratio, L/W, in Fig. 6, one would find that it is less than 1.4; simple division of 16 by 11 shows a number greater than 1.4. They both are about 1.4; they are therefore about equal.

For all the foregoing reasons, reconsideration and allowance of claim 5 over the -112-2 rejection is respectfully requested.

Rejections -102

Claims 1, 2 and 6-9 are rejected as anticipated by Fujii. The statement that "some of the transverse portions have more than one groove" is absolutely incorrect. Three grooves become two grooves in Fig. 6. In every figure of Fujii, there are **FEWER** grooves in the transverse portions, whereas the claims require **MORE GROOVES** in the transverse portions. Fujii is inside out; Fujii is upside down; Fujii is inverse; Fujii is backward. Fujii does not meet the language of claim 1, "some, but less than all of said transverse portions having **MORE THAN ONE GROOVE**."

Fujii **TEACHES AWAY** from the claimed invention: MPEP 2141.02 VI.

In claim 1, "each of said channels having a transverse portion extending substantially transversely of said longitudinal direction". It is the channels that have the transverse portion, each channel has a transverse portion, and it is not the flow field plate that has a transverse portion.

In Fig. 6 of Fujii, the channels 44d, 44e and 44f come together at united section 94 and become channels 50c and 50d. Each of those channels, that is, each of 44d, and 44e, and 44f, do not have more than one groove in the transverse area of that channel. In fact, they have **LESS THAN ONE GROOVE** apiece. Similarly, each of the three channels 44a, and 44b, and 44c have a single groove until reaching the united section 92 where they then together form two grooves 50a and 50b which is **LESS THAN ONE GROOVE** per channel. Re the Response to Arguments: the portions 92 and 94 may be near an inlet edge but they are not extending longitudinally from that edge since they extend transversely of the general

longitudinal flow direction, which is the direction of the arrow B in Fig. 6. The vertical portions cannot be extending longitudinally. In any event, the channels go to **LESS THAN ONE GROOVE PER CHANNEL**, and never change to more than one groove per channel, as called for in claim 1. The Response to Arguments conclude with the statement that "Fujii teaches how to create one and two grooves in transverse areas." However, Fujii does not teach how to have **MORE THAN ONE GROOVE** in a transverse channel; instead Fujli teaches having **LESS GROOVES** than the number of channels in transverse areas.

FUJII IS IRRELEVANT. Therefore, reconsideration and allowance of claim 1 and independent claims 2 and 6-9 over Fujii is respectfully requested.

Rejections -103

2. Claims 3 and 4 are rejected as obvious over Fujii in view of Tawfik. Tawfik does not disclose interdigitated channels. Tawfik discloses obstructed channels due to obstructions 80 (see Figs. 12 and13, paragraph 0048). Therefore, both Fujli and Tawfik are irrelevant. For that reason, reconsideration and allowance of claims 3 and 4 over Fujii and Tawfik is respectfully requested.

3. Claims 3 and 4 are rejected as obvious over Fujii in view of Washington. Fujii's irrelevance is discussed in paragraph 1 hereinbefore. In the Response to Arguments, the rejection alleges that the previous response was "attacking references individually." However, nothing could be further from the truth. The prior response was that "there is no indication in Fujii, Washington or Tawfik as to how one would accommodate the interdigitated channels so that they would have one or two grooves in transverse areas", as is absolutely required by claims 3 and 4. Claims 3 and 4 don't simply say multiple grooves which are interdigitated; claims 3 and 4 have particular relationships which are not suggested by any combination of all of the references. Specifically, what is it in Washington and Fujii that suggests "one groove in fluid communication between (a) a first part of one inlet portion and a second part of said one inlet portion which is transverse from said first part of said one inlet portion or (b) a first part of one outlet portion and a second part of said one outlet portion which is transverse to said first part of said one outlet portion." There is absolutely no hint of any of that in any combination of the references. That is the issue. Does the language of

the claim cover a combination of two things, the combination of which would be obvious? Since there is no hint of the language of claim 3, it cannot be obvious. Claim 4 depends from claim 3 and is patentable for the same reasons.

The main reason claim 3 is patentable is because it depends from claim 1. The main reason claim 1 is patentable is because Fujii does not teach what is called for in claim 1 and in fact discloses the opposite: instead of **MORE GROOVES** there are FEWER GROOVES IN FUJII. For the foregoing reasons reconsideration and allowance of claims 3 and 4 over Fujii and Washington is respectfully requested.

To save the Examiner considerable time when this case is taken up, a short phone call is recommended should any issue herein still be unresolved. A few minutes on the phone could clarify a point, or result in a supplemental response which would further limit or dispose of issues. A five minute phone call can save the Examiner a lot of work. Such a phone call would be deeply appreciated.

Respectfully submitted,

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